



20900 Swenson Drive,
Suite 150
Waukesha, Wisconsin
53186

262-754-2560
Fax: 262-754-9711

www.gza.com

WORKPLAN

September 12, 2013

The following Workplan is submitted by GZA GeoEnvironmental, Inc. (GZA) for conducting sampling, analysis, monitoring, and reporting at property currently or historically owned and/or operated by Wedron Silica Company (Wedron Silica), Technisand, Inc. (Technisand), and Martin Marietta Corporation (Martin Marietta). The Workplan is prepared in response to requests made by the United States Environmental Protection Agency (USEPA) to Wedron Silica, Technisand, and Lockheed Martin Corporation (Lockheed Martin), and in accordance with the terms of an Administrative Order on Consent (AOC) to which this Workplan will be attached.

The purpose of the Workplan is to evaluate the nature and extent of the presence and/or release of hazardous wastes and/or hazardous constituents at certain locations on Wedron Silica property using a phased approach, comparing soil analytical results to Illinois Tiered Approach to Corrective Action Objectives (TACO)¹ Tier 1 Class I migration to groundwater soil remediation objectives (SROs) to evaluate whether potential source areas exist which require additional characterization and/or investigation.

The general areas included for investigation are:

- 1) the Tech Center;
- 2) the area around Illinois Environmental Protection Agency (IEPA) boring GP-10 drilled in 2012 and IEPA monitoring well G103 installed in 1984 near the former Scale-House well;
- 3) the two former 4,000-gallon gasoline underground storage tanks (USTs) and dispensers closed in 1998 near the main office, which are being investigated under the oversight of the Illinois Office of State Fire Marshal (OSFM), pursuant to a separate Workplan;
- 4) the former 6,000-gallon gasoline UST near the current Screen House that was closed in 1982;
- 5) the Pit 2 reclamation area; and
- 6) evaluation of groundwater and surface water elevations.

The work scopes proposed for each of the six areas were developed through discussions among representatives of the USEPA, Wedron Silica and Lockheed Martin, and will be performed pursuant to the terms of the AOC.

¹ Title 35, Subtitle G, Chapter I, Subchapter F, Part 742 of the Illinois Administrative Code.

After conclusion of implementation of the work set forth in this Workplan, a final report will be prepared for submission to USEPA, as required under the AOC.

Tech Center

The Tech Center and on-site wastewater treatment system layout are shown on View 1 on Figure 1 and an expanded view is shown on Figure 2. The following work will be performed:



- Two Geoprobe® soil borings will be drilled to the depth of refusal (bedrock) or groundwater, whichever is encountered first (Total Depth), adjacent to the on-site wastewater treatment system at the approximate locations shown on Figures 1 and 2. One boring will be drilled just east of the holding tank and the other boring will be drilled just west of the connection to the storm sewer line located on the west side of the Jackson Street right-of-way.
- Soil samples will be field-screened for organic compounds with a photoionization detector (PID) capable of measuring in the part per billion (ppb) range, and two soil samples from each boring will be submitted for laboratory analyses for volatile organic compounds (VOCs) in accordance with USEPA Method 8260B. Soil samples will be selected for laboratory analyses based on field indications from field screening, odors, staining, etc. If there are no such indicators in soil from the holding tank boring, one soil sample will be submitted for analysis from the 6- to 8-foot interval (anticipated to be from near the base of the holding tank) and one soil sample will be submitted for analysis from Total Depth. If there are no such indicators in soil from the boring drilled near the connection to the storm sewer, one soil sample will be submitted for analysis from the 4- to 6-foot interval (anticipated to be from near the base of the storm sewer²) and one soil sample will be submitted for analysis from Total Depth.
- The work conducted, the field screening and analytical results obtained, a comparison of detected constituent concentrations to TACO Tier 1 Class I migration to groundwater SROs and recommendations for follow-up investigation activities, as warranted, will be documented in a report. The report will be submitted to the USEPA. If soil VOC concentrations are all less than TACO Tier 1 Class I migration to groundwater SROs, additional investigation will be unnecessary. If TACO Tier 1 Class I migration to groundwater soil SROs are exceeded, additional activities such as development of Tier 2 TACO levels and/or additional soil investigation and possible investigation of groundwater will be considered. If groundwater investigation is proposed, consideration of the community-wide presence of petroleum constituents in groundwater will be taken into consideration in the interpretation

² Wedron Silica and USEPA have contacted LaSalle County for information on the specifications for the storm sewer. Information obtained from La Salle County will be used to adjust the target intervals of the soil samples, as warranted.



of results. Specific information to be considered will include: 1) soil data collected at other potential source areas; 2) soil data collected as part of this investigation; 3) groundwater flow directions determined from piezometers and surface water gaging collected as part of this investigation; and 4) other available data. If additional investigation of soil and/or groundwater is warranted, a Workplan will be prepared and submitted to the USEPA in advance of conducting additional investigation.

Boring GP-10 and Monitoring Well G103 Area

The area of IEPA 2012 boring GP-10 and 1984 monitoring well G103 near the former Scale-House well is shown on View 2 on Figure 1 and an expanded view is shown on Figure 3. During a 1982 to 1984 groundwater investigation by IEPA, petroleum constituents were reported in the Scale-House well. IEPA noted odors in soil samples collected between the depths of 14.7 feet and approximately 15.8 feet where clay was encountered in the boring (B5) drilled for monitoring well G103. Petroleum constituents were reported at concentrations below TACO Tier 1 SROs in 2012 in soil collected from a depth of 15.5 feet (estimated to be from near or below the water table) in boring GP-10. Refusal was encountered at a depth of 18 feet in boring GP-10. The following work will be performed:

- Three Geoprobe® soil borings will be drilled to Total Depth on approximately 25-foot centers spaced between IEPA 2012 boring GP-10 and 1984 monitoring well G103 at the approximate locations shown on Figures 1 and 3. Note that fixed process equipment exists in the area of the proposed borings which limits access to the area for a Geoprobe® drilling rig.
- Soil samples will be field-screened for organic compounds with a PID capable of measuring in the ppb range, and two soil samples from each boring will be submitted for laboratory analyses for VOCs in accordance with USEPA Method 8260B. Soil samples will be selected for laboratory analyses based on field indications from field screening, odors, staining, etc. If there are no such indicators in soil, one soil sample will be submitted for analysis from the 6- to 8-foot interval (anticipated to be approximately half the distance to the water table) and one soil sample will be submitted for analysis from the depth interval immediately above the water table (approximately 15 to 17 feet) or refusal.
- The work conducted, the field screening and analytical results obtained, a comparison of detected contaminant concentrations to Illinois TACO Tier 1 Class I migration to groundwater SROs and recommendations for follow-up investigation activities, as warranted, will be documented in a report. The report will be submitted to the USEPA. If soil VOC concentrations are all less than TACO Tier 1 Class I migration to groundwater SROs, additional investigation will be unnecessary. If TACO Tier 1 Class I migration to groundwater soil SROs are exceeded, additional activities such as development of Tier 2 TACO levels and/or additional soil investigation and possible



investigation of groundwater will be considered. If groundwater investigation is proposed, consideration of the community-wide presence of petroleum constituents in groundwater will be taken into consideration in the interpretation of results. Specific information to be considered will include: 1) soil data collected at other potential source areas; 2) soil data collected as part of this investigation; 3) groundwater flow directions determined from piezometers and surface water gaging collected as part of this investigation; and 4) other available data. If additional investigation of soil and/or groundwater is warranted, a Workplan will be prepared and submitted to the USEPA in advance of conducting additional investigation.

Former 4,000-Gallon Gasoline UST System

The former 4,000-gallon gasoline UST system is shown on View 3 on Figure 1 and an expanded view is shown on Figure 4. Site assessment soil samples were collected from the base and sidewalls of the UST tank basin at the time the USTs were pulled in 1998, but soil samples were not taken beneath the short section of piping runs between the USTs and dispensers or beneath the dispensers. Based on information in the UST closure report and historical aerial photography, the locations of the two USTs and two dispensers were identified to within a couple of feet. Investigation of this area will be performed under the oversight of the OSFM, pursuant to a separate Workplan, which will generally cover the following work:

- Four Geoprobe® soil borings will be drilled to depths of approximately 7 feet (2 feet below the top of the former USTs) at the approximate locations shown on Figures 1 and 4. The proposed borings target the location of the former dispensers and the approximate locations of the former piping runs between the former USTs and dispensers.
- The current gasoline aboveground storage tank (AST) will be temporarily moved to allow the target locations to be drilled.
- Soil samples will be field-screened for petroleum with a PID capable of measuring in the ppb range, and one soil sample from each boring will be submitted for laboratory analyses for VOCs in accordance with USEPA Method 8260B, lead in accordance with USEPA Method 6010B, and soil pH in accordance with USEPA Method 9045D. Soil samples will be selected for laboratory analyses based on field indications from field screening, odors, staining, etc. If there are no such indicators, a soil sample from the 5- to 7-foot interval will be submitted for the analyses.
- The work conducted, the field screening and analytical results obtained, a comparison of detected constituent concentrations to Illinois TACO Tier 1 Class I migration to groundwater SROs and recommendations for follow-up investigation activities, as warranted, will be documented in a report. The report will be submitted to the OSFM and the USEPA. If soil VOC



concentrations are all less than TACO Tier 1 Class I migration to groundwater SROs, additional investigation will be unnecessary. If TACO Tier 1 Class I migration to groundwater SROs are exceeded, additional activities such as development of Tier 2 TACO levels and/or additional soil investigation and possible investigation of groundwater will be considered. If additional investigation of soil and/or groundwater is warranted, a Workplan will be prepared and submitted to the OSFM in advance of conducting additional investigation.

Former 6,000-Gallon Gasoline UST Near Screen House

The former 6,000-gallon gasoline UST near the current Screen House is shown on View 4 on Figure 1 and an expanded view is provided on Figure 5. The 6,000-gallon gasoline UST was installed in approximately 1975, and pulled in approximately 1982 to allow for construction of the current Screen House. Based on information in Wedron Silica files, the UST was located north of the "Paper Shed" and was 29 feet 2 inches long and 6 feet in diameter. The location of the Paper Shed was identified in historical aerial photography. The following work will be performed:

- Five Geoprobe® soil borings will be drilled on approximate 10-foot centers to depths of approximately 11 feet (estimated 2 to 3 feet below the base of the former USTs) at the approximate locations shown on Figures 1 and 5. The proposed borings target the ends and footprint of the former USTs. Note that the Screen House was constructed adjacent to the former 6,000-gallon gasoline UST which may limit access to the area for a Geoprobe® drilling rig.
- Soil samples will be field-screened for petroleum with a PID capable of measuring in the ppb range, and one soil sample from each boring will be submitted for laboratory analyses for VOCs in accordance with USEPA Method 8260B, lead in accordance with USEPA Method 6010B, and soil pH in accordance with USEPA Method 9045D. Soil samples will be selected for laboratory analyses based on field indications from field screening, odors, staining, etc. If there are no such indicators, the soil sample from the 9- to 11-foot interval (estimated 1 to 3 feet below the former UST) will be submitted for the analyses.
- The work conducted, the field screening and analytical results obtained, a comparison of detected constituent concentrations to Illinois TACO Tier 1 Class I migration to groundwater SROs and recommendations for follow-up investigation activities, as warranted, will be documented in a report. The report will be submitted to the USEPA. If soil VOC concentrations are all less than TACO Tier 1 Class I migration to groundwater SROs, additional investigation will be unnecessary. If TACO Tier 1 Class I migration to groundwater SROs are exceeded, additional activities such as development of Tier 2 TACO levels and/or additional soil investigation and possible investigation of groundwater will be considered. If groundwater investigation is



proposed, consideration of the community-wide presence of petroleum constituents in groundwater will be taken into consideration in the interpretation of results. Specific information to be considered will include: 1) soil data collected at other potential source areas; 2) soil data collected as part of this investigation; 3) groundwater flow directions determined from piezometers and surface water gaging collected as part of this investigation; and 4) other available data. If additional investigation of soil and/or groundwater is warranted, a Workplan will be prepared and submitted to the USEPA in advance of conducting additional investigation.

Pit 2 Reclamation Area

The partially reclaimed Pit 2 is shown on Figure 1. After sand extraction from the quarry ended, the southern portion was reclaimed with various materials. Further evaluation of the groundwater-flow conditions in and around Pit 2 will be conducted before soil samples are collected from soil borings for laboratory analysis. One groundwater-level monitoring location will be completed. We understand that additional wells will be installed by USEPA and IEPA in 2013, and water levels obtained from these wells will also be used to refine groundwater-flow conditions in and around Pit 2. The following work will be performed:

- Install a piezometer in an area north of the existing scale and south of the pipe bridge across the Fox River at the approximate location shown on Figure 1 to aid in the evaluation of groundwater-flow conditions in and around Pit 2. The piezometer will be installed in a boring using rotasonic drilling methods. Continuous soil and rock core samples will be collected for geological characterization. A piezometer will be constructed of 2-inch diameter PVC casing and screened with a 20-foot long, 0.010-inch slot screen placed across the water table and finished with a flush-mount protective casing. Filter pack will be placed around and to approximately 2 feet above the screen, followed by placement of a 2-foot thick bentonite seal and bentonite grout to near grade. The piezometer will be developed to remove residual drill cuttings from the wells to provide hydraulic connection between the aquifer and the well screen. The piezometer will be surveyed for vertical and horizontal control so that groundwater elevations can be determined from the piezometer.
- Two rounds of water levels will be collected from the piezometer, from the piezometers proposed for the task discussed below, from the nine monitoring wells (MW-1 through MW-9) installed by Wedron Silica in 2013, the monitoring well (TW-9) installed by IEPA in 2012, the four surface water monitoring locations containing pressure transducers (Pits 1, 2 and 3 and at the Fox River pump house), the two staff gage locations along Buck Creek, the location in the Fox River at the Highway 21 bridge crossing and the additional monitoring wells to be installed by the USEPA and IEPA in 2013, to which USEPA or IEPA provides access. Each of the water-level monitoring locations, except for those yet to be installed by USEPA and IEPA, are shown on Figure 1.



- Using the water-level data obtained from the above task, locations will be selected in consultation with the USEPA for three Geoprobe[®] soil borings to be drilled to Total Depth within the reclaimed portion of Pit 2.
- Soil samples will be field-screened for organic compounds with a PID capable of measuring in the ppb range, and two soil samples from each boring will be submitted for laboratory analyses for VOCs in accordance with USEPA Method 8260B. Foreign material encountered in each boring, if any, will be noted. Soil samples will be selected for laboratory analyses based on field indications from field screening, odors, staining, etc. If there are no such indicators in soil, one soil sample will be submitted for analysis from the 6- to 8-foot interval (anticipated to be approximately half the distance to the water table) and one soil sample will be submitted for analysis from the depth interval immediately above the water table (approximately 15 to 17 feet). If groundwater is encountered, a groundwater grab sample will be collected for VOC analysis in accordance with USEPA Method 8260B.
- The work conducted, the field screening and analytical results obtained, a comparison of detected constituent concentrations to Illinois TACO Tier 1 Class I migration to groundwater SROs and recommendations for follow-up investigation activities, as warranted, will be documented in a report. The report will be submitted to the USEPA. If soil VOC concentrations are all less than TACO Tier 1 Class I migration to groundwater SROs, additional investigation will be unnecessary. If TACO Tier 1 Class I migration to groundwater SROs are exceeded, additional activities such as development of Tier 2 TACO levels and/or investigation of soil and possible investigation of groundwater will be considered. If groundwater investigation is proposed, consideration of the community-wide presence of petroleum constituents in groundwater will be taken in the interpretation of results. Specific information to be considered will include: 1) soil data collected at other potential source areas; 2) soil data collected as part of this investigation; 3) groundwater flow directions determined from piezometers and surface water gaging collected as part of this investigation; and 4) other available data. If additional investigation of soil and/or groundwater is warranted, a Workplan will be prepared and submitted to the USEPA in advance of conducting additional investigation.

Evaluation of Groundwater and Surface Water Elevations

In order to further evaluate and define the groundwater-flow regime throughout the Wedron community, three additional piezometers will be installed. The following work will be performed:

- Three piezometers will be installed in a line near the north extent of the Wedron Silica mine operations at the approximate location shown on Figure 1. In addition, surface-water level measurement locations have already been



established in Pits 1, 2 and 3, at two locations on the Fox River, and at two locations along Buck Creek at the approximate locations shown on Figure 1. The piezometers will be installed in borings drilled using rotosonic drilling methods. Continuous soil and rock core samples will be collected for geological characterization. The piezometers will be constructed of 2-inch diameter PVC casing and screen with 20-foot long, 0.010-inch slot screen placed across the water table and finished with a flush-mount protective casing. Filter pack will be placed around and to approximately 2 feet above the screens followed by placement of a 2-foot thick bentonite seal and bentonite grout to near grade. The piezometers will be developed to remove residual drill cuttings from the wells to provide hydraulic connection between the aquifer and each well screen. The piezometers will be surveyed for vertical and horizontal control so that groundwater elevations can be determined from the piezometer.

- Two rounds of water levels will be collected from the three piezometers, from the piezometer proposed in the prior task, from the nine monitoring wells (MW-1 through MW-9) installed by Wedron Silica in 2013, the monitoring well (TW-9) installed by IEPA in 2012, the four surface water monitoring locations containing pressure transducers (Pits 1, 2 and 3 and at the Fox River pump house), the two staff gage locations along Buck Creek, the location in the Fox River at the Highway 21 bridge crossing and in additional monitoring wells to be installed by the USEPA and IEPA in 2013, to which USEPA or IEPA provides access.
- For each round of water-level measurements, water-level data and a groundwater-elevation contour map will be submitted to the USEPA.

Additional Deliverables

Prior to implementation of the work under this Workplan, a Quality Assurance Project Plan (QAPP), Data Quality Objectives (DQOs), and a Health and Safety Plan (HASP) will be prepared for submission to the USEPA, as required under the AOC. After approval by USEPA, the QAPP, DQOs and HASP shall be considered integrated into this Workplan.

After conclusion of implementation of the work set forth in this Workplan, a Final Report will be prepared for submission to USEPA, as required under the AOC.

Schedule

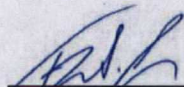
The work set forth in this Workplan will be implemented according to the following schedule, unless otherwise approved by the USEPA:

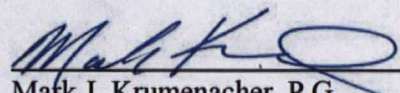


<u>Activity</u>	<u>Timeframe</u>
Submission of QAPP, DQOs, and HASP	Within 20 days after the Effective Date of the AOC
Commencement of field work at the Tech Center, the Screen House and the Scale House, and commencement of piezometer installations	Within 30 days after USEPA approval of the QAPP and DQOs
Two rounds of water-level measurements	Once per week for two weeks, to begin within 7 days after the later of: <ul style="list-style-type: none"> – Installation and development of piezometers by Respondents – Installation and development of piezometers by USEPA and IEPA
Submit water-level measurement data, water elevation contour map, and Pit 2 reclamation area boring locations to USEPA	Within 14 days after collection of the first round of water-level measurements
Commencement of borings at Pit 2 reclamation area	Within 14 days after USEPA approval of boring locations
Final Report	Within 45 days after receipt of third-party data validation package for samples from Pit 2 reclamation area borings

Very truly yours,

GZA GeoEnvironmental, Inc.

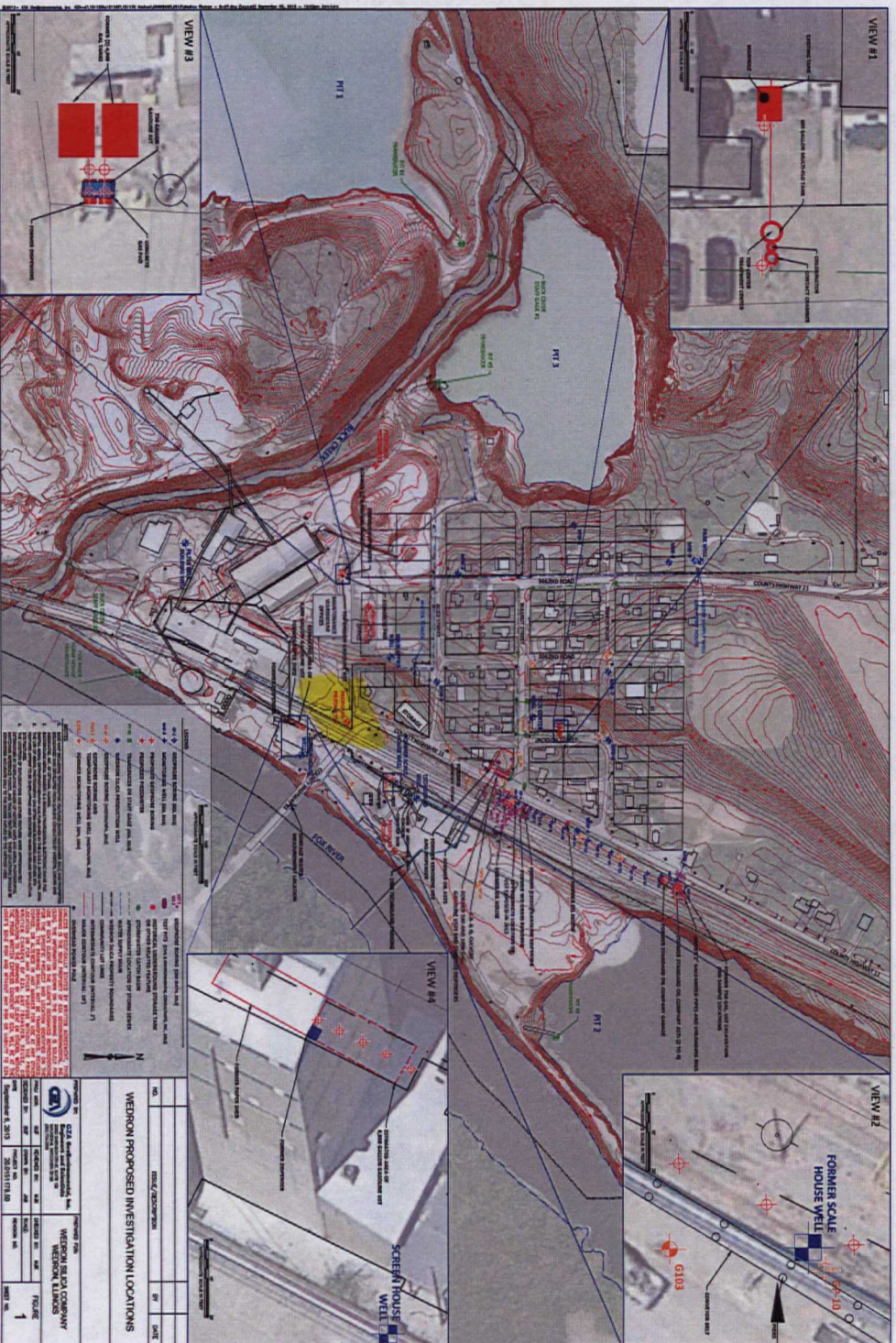

Bernard G. Fenelon, P.G.
Senior Project Manager

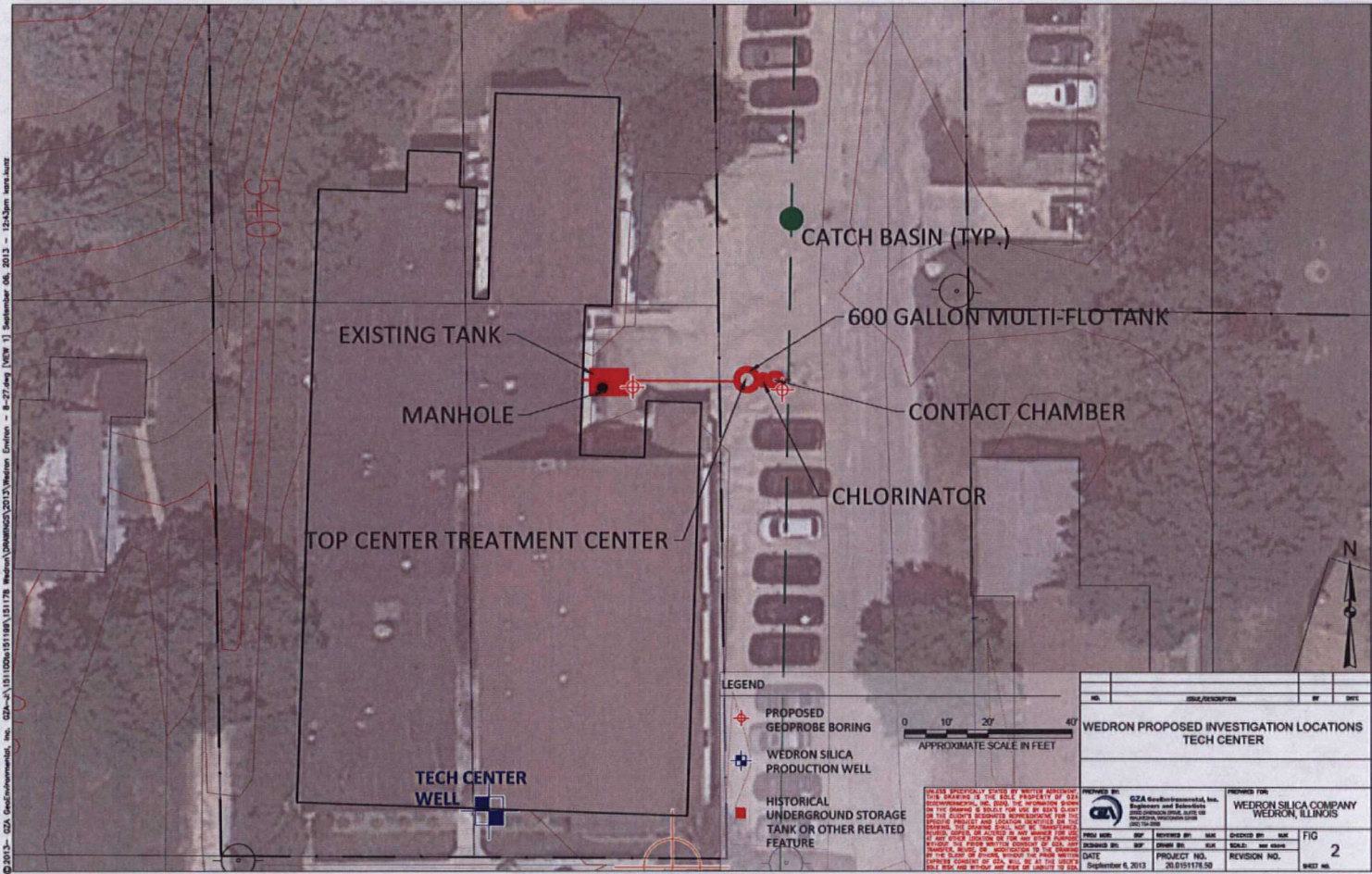

Mark J. Krumenacher, P.G.
Principal

Attachments



FIGURES



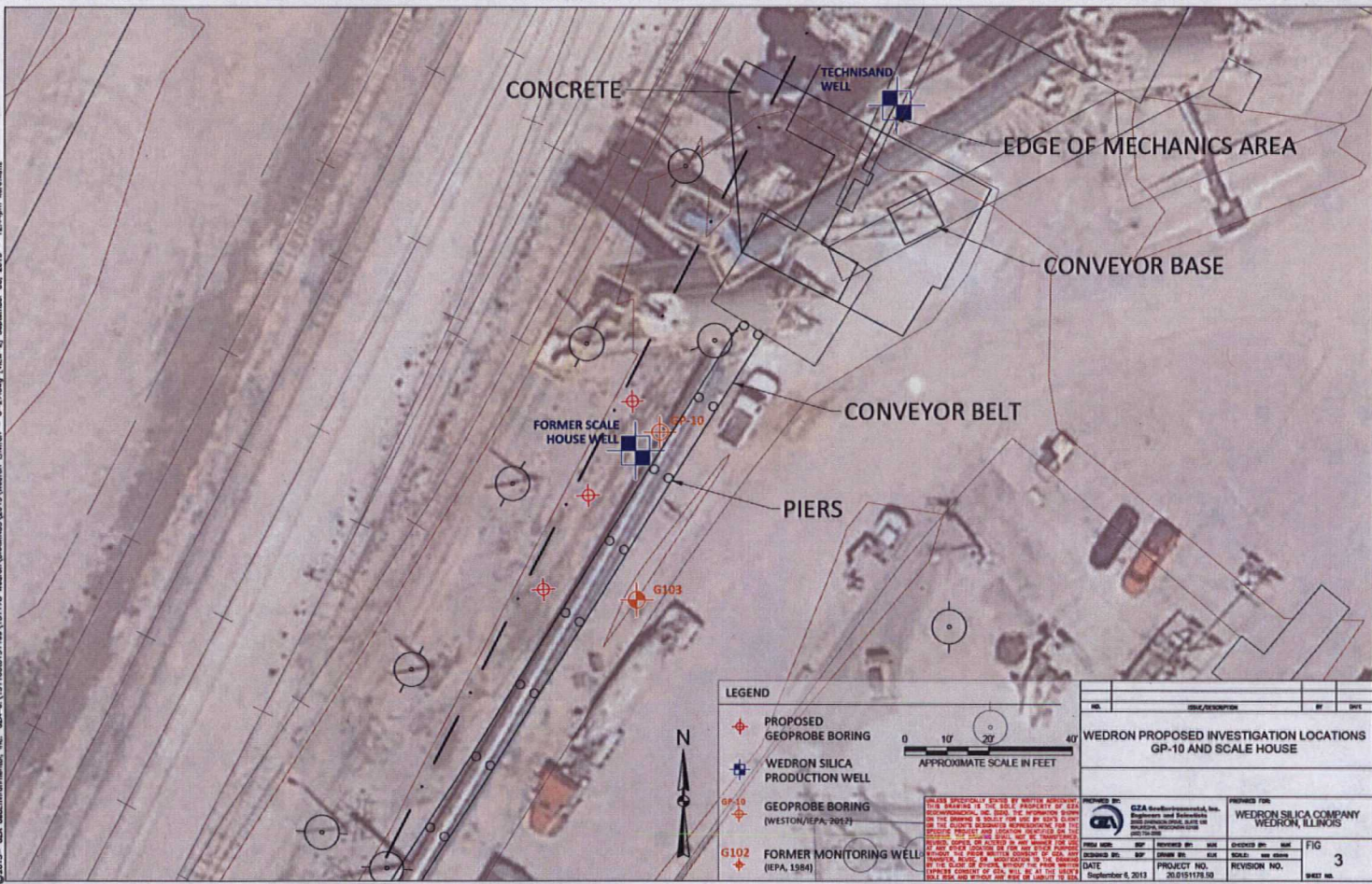


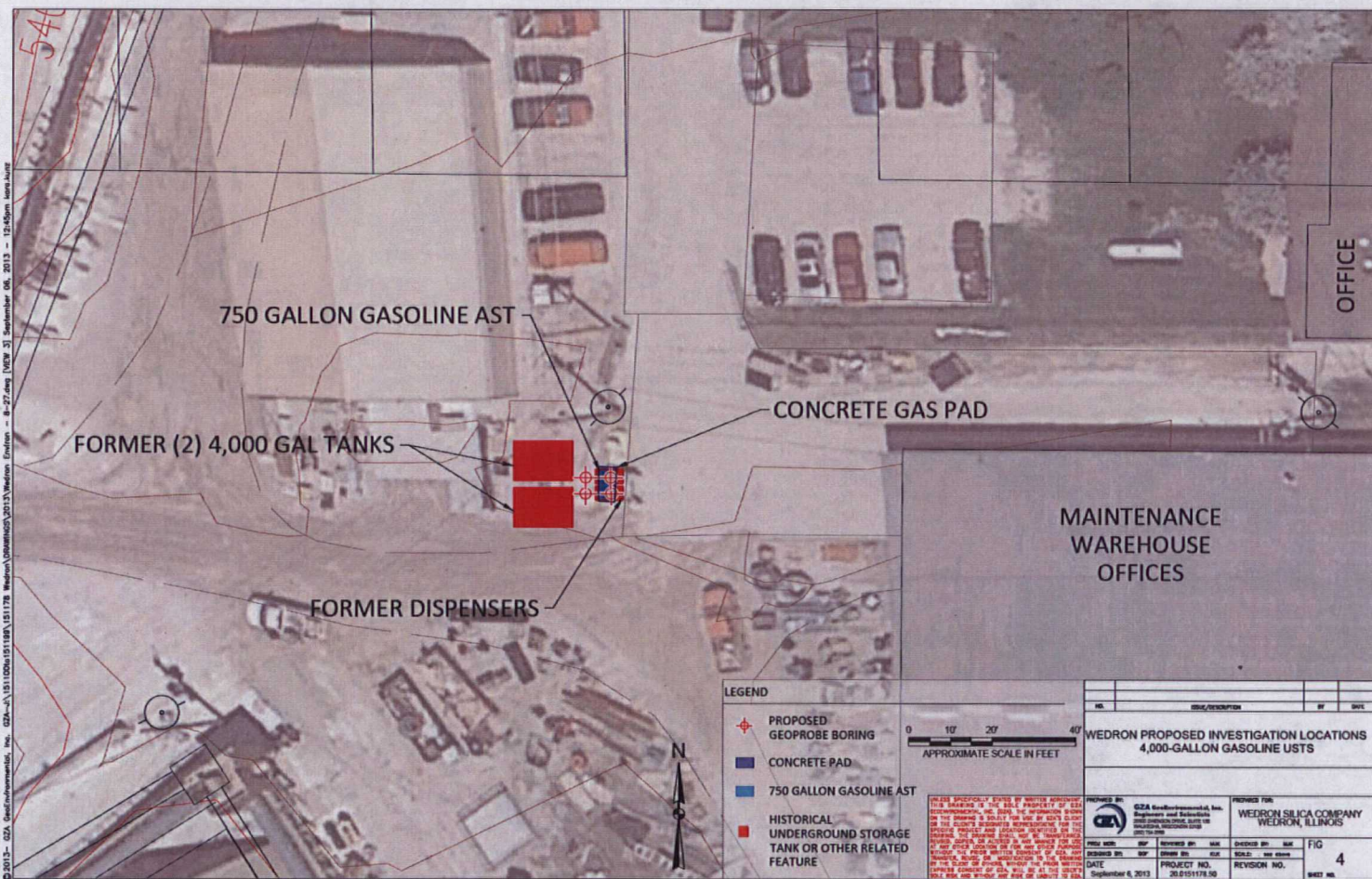
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REVISION		DATE
WEDRON PROPOSED INVESTIGATION LOCATIONS TECH CENTER		
DESIGNED BY: GZA GeoEnvironmental, Inc. ENGINEERED BY: GZA GeoEnvironmental, Inc. CHECKED BY: GZA GeoEnvironmental, Inc. DATE: September 6, 2013		PROJECT NO. 2013151178-50
FOR: WEDRON SILICA COMPANY WEDRON, ILLINOIS		FIG. 2
SCALE: AS SHOWN		REVISION NO. 04537 ML

2013- GZA GeoEnvironmental, Inc. GZA-A-151100a-151178 Wedron\JRM\GIS\2013\Wedron [Drawn - 8-27-13] September 06, 2013 - 12:44pm hays.kurtz





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